UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P O Box 1450
Alexandria, Virginia 22313-1450
www uspto gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,461	08/20/2001	Richard Alan Haight	YO919980510US2	7338

7590 05/07/2008

Dr. Daniel P. Morris, Esq.
IBM Corporation
Intellectual Property Law Dept.
P.O. Box 218
Yorktown Heights, NY 10598

EXAMINER	
EVANS, GEOFFREY S	

ART UNIT	PAPER NUMBER
3742	

MAIL DATE	DELIVERY MODE
05/07/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/933,461	HAIGHT ET AL.	
	Examiner	Art Unit	
	Geoffrey S. Evans	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *101-184* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *101-184* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Please note that this application is now being handled in art unit 3742.

2. Claims 101-106,108-123, 132/101,132/102,132/105, 133,134,135,145/135, 148, 152,153,156,157,166,167,176, and 177 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification of the instant application only gives examples of laser ablation of chromium (page 7 of specification), gold (page 12 of specification), silver film on glass (page 13 of specification), SiO_2 (glass) (page 15 of specification), cornea (page 16 of specification). There is no disclosure of the material genus being "non- biological" as claimed in claims 101-106,108 -123, 132/101, 132/102, 132/105, 135, 145/135, 157,167, and 177 of the material genus being "non-organic" as claimed in claims 133, 134,152,156,166,176, of the material genus being "organic" as claimed in claim 153. Regarding claim 148 there is no disclosure in the originally filed instant application of a “metallic material transparent to radiation” as recited in claim 148 on line 2 but instead only of a metallic material (gold) being opaque to radiation and another embodiment in which the transparent material (SiO_2) .

3. Claims 101-106,108-123,132/101,132/105,133,134,135, 145/135,152, 153,156, 157,166,167,176, and 177 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The originally filed specification provides no support for the respective genuses of laser ablation of “non-biological material” as recited in claims 101-106,108-123,132/101, 132/102,132/105,135,145/135, 157,167, and 177, “non-organic material” as recited in claims 133,134,152,156,166, and 176 or “organic material” as recited in claim 153 but merely examples of laser ablation of chromium, gold, silver film on glass, SiO_2, and a cornea.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 101-184 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mourou et al. in U.S. Patent No. 5,656,186 in view of Portney et al. in U.S. Patent No. 5,053,171 or Bennin et al. in U.S. Patent No. 5;160,823. Mourou et al. discloses a

method for laser induced breakdown of a non-biological material (e.g. gold and glass), the material being characterized by a relationship of fluence breakdown at which breakdown occurs versus laser pulse width that exhibits a distinct change of slope at a characteristic laser pulse width, said method comprising the steps of: generating at least one laser pulse which has a pulse width equal to or less than said characteristic laser pulse width. Mourou et al. does not disclose directing or focusing the laser beam to a point above the surface of the material but does disclose that the optics can include a mask (e.g. see figure 6A). Portney teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 3,lines 30-45. Alternatively Bennin et al. teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and column 4,and lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 102, Mourou et al. discloses that the material is a metal, the pulse width is 10 to 10,000 femtoseconds and the pulse has an energy of 1 nanojoule to 1 microjoule (see claim 2 of Mourou et al. as stated in column 11, lines 65-67). Regarding claim 103, Mourou et al. discloses that the spot size is varied within a range of 1 to 100 microns by changing the f-number of the laser beam (see column 12,lines 1-3). Regarding claim 104, Mourou et al. discloses the spot size is varied within a range of 1 to 100 microns by varying the target position(see column 12,lines 4-6).

Regarding claim 105, Mourou et al. discloses that the material is transparent to radiation emitted by the laser and the pulse width is 10 to 10,000 femtoseconds, the pulse has energy of 10 nanojoules to 1 millijoule (see column 12,lines 7-10). Regarding claim 106, the step of focusing directs the focus of the laser beam to a point before the surface. Whether the point “before” the material is “above" the material is a mere matter of orientation of the laser beam with respect to the material and so not patentable. Regarding claim 107, Mourou et al. discloses a method for laser induced breakdown (LIB) of a material with a pulsed laser beam, the material being characterized by a relationship of fluence breakdown threshold versus laser pulse width that exhibits a rapid and distinct change in slope at a predetermined laser pulse width that exhibits a rapid and distinct change in slope at a predetermined laser pulse width where the onset of plasma breakdown occurs, said method comprising the steps of: a) generating a beam of one or more laser pulses in which each pulse has a pulse width equal to or less than said predetermined laser pulse width obtained by determining the ablation (LIB) threshold of the material as a function of pulse width and by determining where the ablation threshold function is no longer proportional to the square root of the pulse width (see column 12,lines 14-27 of Mourou et al.). Mourou et al. does not focus the laser beam to a point above the surface of the material so that the ablation threshold of said laser beam is substantially at said surface. Portney teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (e.g. see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam

above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and column 4,and lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 108, Mourou et al. discloses that laser pulse has an energy in the range of 10 nanojoules to 1 millijoule (see claim 8 of Mourou et al. in column 12,lines 30-32). Regarding claim 109, Mourou et al. discloses that the laser pulse has a fluence in a range of 100 millijoules per square centimeter to 100 joules per square centimeter (see claim 9 of Mourou et al in column 12,lines 33-35). Regarding claim 110, Mourou et al. has a laser pulse that defines a spot in or on the material and the LIB causes ablation of an area having a size smaller than the area of the spot (see claim 10 of Mourou et al in column 12,lines 36-39). Regarding claim 111, Mourou et al. uses a laser pulse with a wavelength in a range of 200 nm to 2 microns (see claim 11 in column 12,lines 40-42 of Mourou et al.). Regarding claim 112, Mourou et al. discloses a pulse width in a range of a few picoseconds to femtoseconds (e.g. see claim 12 of Mourou et al. in column 12,lines 43-44). Regarding claims 113 and 114, Mourou et al. discloses that the breakdown includes changes caused by one or more of ionization, free electron multiplication, dielectric breakdown, plasma formation, and vaporization (see Mourou et al in column 12,lines 45-50). Regarding claim 115, Mourou et al. discloses that the breakdown includes disintegration (e.g. see claim 15 of Mourou et al. in column 12,lines 51-52). Regarding claim 116, see claim 16 of Mourou et al. in column 12,lines 53-54. Regarding claim 117, see claim 17 of Mourou et al. in column

12,lines 55-56. Regarding claim 118, see claim 18 of Mourou et al. in column 12,lines 57-59. Regarding claim 119, see claim 19 of Mourou et al. in column 12,lines 60-63. Regarding claim 120, see claim 20 of Mourou et al. in column 12,lines 64-65. Regarding claim 121, see claim 21 of Mourou et al. in column 12,line 66 to column 13,line 3.Regarding claim 122, see Mourou et al. in claim 22 in column 13,lines 4-7. Regarding claim 123, Mourou et al. discloses this in claim 23 in column 13,lines 8-12). Regarding claim 124, Mourou et al. meets all of the limitations in paragraph “a” (e.g. see claim 24 of Mourou et al. in column 13,lines 13-26). Mourou et al. does not disclose directing said one or more pulses of said beam to a point above the surface of the material. Portney et al. teach laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece(see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and column 4,lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claims 125 and 126, see claims 25 and 26 of Mourou et al. in column 13,lines 29-44. Please note that Portney et al. disclose in column 5, lines 13-14 "a mask may be scanned rather than being exposed all at once". Alternatively Bennin et al. disclose scanning during laser ablation. Regarding claims 127-132, see respectively claims 27-32(see column 13,lines 45-64) of Mourou et al. in U.S. Patent No. 5,656,186.

Regarding claim 133, Mourou et al. discloses all of the limitations of claim 133 (e.g. see claim 33 of Mourou et al. in column 13,line 65 to column 14,line 13) except focusing or directing the laser beam above the surface of the material. Portney teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam before the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and column 4,lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 134, see claim 34 of Mourou et al. in column 14,lines 14-17. Regarding claim 135, Mourou et al. discloses all of the limitations of claim 135 in claim 35 (see column 14,lines 18-31 of Mourou et al.) except directing (focusing) the pulse to a point above the surface of the material. Portney et al. teach laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam above the surface of the workpiece (see figure 2 , column 4,lines 34-38 and column 4 lines 49-63) so that an image of the mask is ablated onto the surface of the workpiece. It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding

claim 136, Mourou et al. discloses all of the limitations of claim 136 in claim 36 of Mourou et al. (see column 14,lines 32-47) except directing the pulse to a point above the surface of the material. Portney et al. teach laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teach laser ablation while focusing the laser beam above the surface of the workpiece (see figure 2) so that an image of the mask is ablated onto the surface of the workpiece(see column 4,lines 34-38 and column 4,lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 137, Mourou et al. discloses all of the limitations of claim 137 in claim 37 of Mourou et al. (see column 14,lines 48-62) except directing the pulse to a point above the surface of the material. Portney et al. teach laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece(see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teach laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and column 4,lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 146, Mourou et al. discloses all of the limitations of claim 146 except directing the pulse to appoint above the surface of the material.

Portney et al. teach laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teach laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and column 4,lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 147, Mourou et al. discloses obtaining the beam by chirped pulse amplification (CPA) means comprising means for generating a short optical pulse having a predetermined duration, means for stretching such optical pulse in time, means for amplifying such optical pulse in time, means for amplifying such stretched optical pulse including solid state amplifying media, and means for recompressing such amplified pulse to its original duration (see column 13,lines 57-64). Regarding claim 148, Mourou et al. discloses all of the limitations of claim 148 (see column 11,lines 53-67 and column 12,lines 7-10) except directing the laser pulse to a point above the surface of the material. Portney teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and column 4, lines 49-63). It would have been obvious to adapt Mourou et al. in

view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 149, Mourou et al. discloses obtaining the beam by chirped pulse amplification (CPA) means comprising means for generating a short optical pulse having a predetermined duration; means for stretching such optical pulse in time; means for amplifying such optical pulse in time; means for amplifying such stretched optical pulse including solid state amplifying media; and means for recompressing such amplified pulse to its original duration (see column 13,lines 57-64). Regarding claim 150, Mourou et al. discloses all of the limitations of claim 150 (See column 6,lines 27-41 and column 11,lines 53-64) except directing the laser pulse to a point above the surface of the material. Portney teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece(see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece(see figure 2 and column 4,lines 34-38 and column 4,lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claim 151, Mourou et al. discloses all of the limitations of claim 151 except directing the laser to a point above the surface of the workpiece of the material. Portney teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 3,lines 30-

45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is laser ablated onto the workpiece (see figure 2, column 4, lines 34-38 and column 4,lines 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Benin et al. to focus the laser beam above the workpiece so that an image of the mask is ablated onto the surface of the workpiece. Regarding claim 152, Mourou et al. discloses that the material can be gold (see column 5, line 22) which is not organic. Regarding claim 153, Mourou et al. discloses that the material can be a cornea (see column 8, line 12), which is organic material. Regarding claim 154, Mourou et al. discloses all of the limitations of claim 154 (e.g. see column 1,line 50 to column 2,line 18) except directing the laser pulse to a point above the surface of the material. Portney teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece(see figure 2 and column 3,lines 30-45). Alternatively Bennin et al. teaches laser ablation while focusing the laser beam above the surface of the workpiece so that an image of the mask is ablated onto the surface of the workpiece (see figure 2 and column 4,lines 34-38 and 49-63). It would have been obvious to adapt Mourou et al. in view of Portney et al. or Bennin et al. to focus the laser beam' above the workpiece so that an image of a mask can be ablated onto the workpiece. Regarding claims 155-164, focusing the laser beam before the workpiece is already present in view of the adaption of the teachings of Mourou et al. in view of Portney et al. or Benin et al.. Regarding claims 165-174, Mourou et al. recognizes the need for a minimum threshold fluence value for ablation threshold.

Therefore one of ordinary skill in the art would recognize the need for the focused point to be positioned such that there is a fluence level at the ablation threshold at the surface of the material. Regarding claims 175-184, adjusting the intensity of the beam according to the material being ablated is an easily predictable adjustment of the apparatus in view of Mourou et al. showing different pulse width vs. threshold fluence levels for gold(see figure 2) and glass (see figure 8) and well within the level of ordinary skill in the art to use the minimum necessary for ablation to minimize or prevent thermal effects during ablation.

7. Applicant's arguments filed 14 February 2008 have been fully considered but they are not persuasive. Regarding the rejection under 35 U.S.C. 112, first paragraph in the previous office action, Applicant cannot successfully argue that Applicant by having a few examples of the genus is entitled to claim the entire genus since the art area is highly experimental (laser machining with ultrashort pulses) and therefore having unpredictable results. Regarding the rejection under 35 U.S.C. 103(a), Portney et al. in U.S. Patent No. 5,053,171 discloses using laser pulses (see column 3,line 45) and also discloses that a small amount of heat is produced during ablation (see column 4,lines 62-65), Portney et al. nowhere discloses “laser ablation by heating” as argued on page 22 of Applicant’s remarks. Indeed it is recognized in the laser machining art that the laser ablation process and the heating process are different processes (e.g. see column 2, lines 13-15 of Hughes et al. in U.S. Patent No. 4,943,700) that are merely partly concurrent in time in the Portney et al. reference due to Portney et al. apparently using laser pulses of greater width than Mourou et al.. Bennin in U.S. Patent No. 5,160,823

discloses having the laser beam focused above the material (workpiece). It is argued that because Mourou et al. focuses the laser beam at or beneath the workpiece surface one would not be motivated by the teaching of Bennin to adapt the Mourou et al. reference. This is not persuasive since one of ordinary skill in the art is aware that the critical parameter is the fluence level (Joules/cm^2). Therefore there would be no problem to one of ordinary skill in the art to adapt Mourou et al. with the teachings of Bennin et al. by focusing the laser beam above the workpiece so long as the fluence level at the surface of the material is at or above the threshold fluence level. Applicant's arguments regarding dependent claim 102 are not understood. Claim 2 of Mourou et al. states "…. wherein the material is a metal, the pulse width is 10 to 10,000 femtoseconds, and the beam has energy of 1 nanojoule to 1 microjoule." (see column 11 ,lines 65-67). Furthermore the rejection being made is under 35 U.S.C. 103(a) and not under 35 U.S.C. 102 as stated on paragraph 23 of the Remarks. Since Mourou et al. is the base reference, no statement of motivation is required. Applicant's arguments regarding claim 103 are similarly not understood. Claim 3 of Mourou et al. states that ".. . wherein the spot size is varied within a range of 1 to 100 microns by changing the f number of the laser beam.". Regarding claim 104 the previous office action shows that the "teaching" is in claim 4 of Mourou et al.. Regarding claim 105, the previous office action refers to claim 5 of Mourou et al. for the subject matter. Regarding claim 106, the previous office action refers to claim 6 of Mourou et al. for the subject matter. Regarding claim 107, the limitations stated in the previous office action as being present in Mourou et al. are found in claim 7 of Mourou et al. Regarding claims

108,109,110,111, 112,113,114,115,116,117 Applicant is relying on the arguments regarding claim 101. See the response to those arguments above. Regarding Applicant's arguments on page 28 of the Remarks, the motivation to combine Mourou et al. in view of Portney or Benin et al. is stated in the rejection above. In claims 125 and 126, Portney et al. in U.S. Patent No. 5,053,171 discloses scanning the laser beam (see column 5,line 16), Bennin et al. discloses scanning the laser beam (see column 4, lines 64-66), the terminology longitudinal direction and transverse direction are met by scanning in any directions since these terms are not defined by the respective claims. It should be noted that since Bennin et al. discloses moving stages 23 and 24 in different directions (see figure 1 and column 4,lines 35-38),one of the X and Y axis stages can be considered to be the longitudinal direction and the other the transverse direction. Regarding claims 127-132, these limitations are all disclosed in claims 27-32 of Mourou et al.. Regarding claim 133, Bennin et al. discloses as shown in figure 2 (see also column 4,lines 34-38 and column 4,lines 49-63) the laser beam focused before the workpiece (material) so that a projection of the mask is formed onto the workpiece (material). Regarding arguments concerning claim 135, Portney et al. in U.S. Patent No. 5,053,171 shows in figure 2 having the laser beam focused before the beam reaches the workpiece (material). It is clear from the language in column 3, lines 30-45 that the focusing optic 27 is used to project an image of the outline 24 of the mask onto the workpiece (element 24). Regarding arguments concerning claim 136, see the response to the previous rejections above. Regarding arguments concerning claim 137, see the response to the rejections above. Regarding arguments concerning claim 146,

see the response to the rejections above. Regarding arguments concerning claim 147, see column 13, lines 57-64 of Mourou et al.. Regarding arguments concerning claim 148, the motivation statement is not conclusory as it states a reason to combine the references. Regarding arguments concerning claim 149, see column 13, lines 57-64 of Mourou et al. . Regarding arguments concerning claim 150, see the response to the arguments above. Regarding arguments concerning claims 155-184 see the new rejection above. Applicant has made numerous arguments that for a proper 103 rejection the exact location must be pointed out for the teachings or disclosure in the references. Since MPEP Section 706.02(j) merely states that it is preferable (i.e. not mandatory) for the examiner to point out the location of the relevant teachings in making a rejection, Applicant is requested to supply citations of pertinent case law (not dicta) or BPAI decisions stating that is <u>mandatory</u> for a proper rejection to point out the exact locations of the relevant teachings. Since Bennin et al. in U.S. Patent No. 5,160,823 and Portney et al. in U.S. Patent No. 5,053,171 are not large documents they should not be too difficult to completely read. Applicant's further requests for exact placement of locations of subject matter in Mourou et al. in U.S. Patent No. 5,656,186 is even more mysterious since Applicant apparently used the claims from this patent (and its reissue applications) in drafting the instant claims in this application.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kaneoka et al. in Japan Patent No. 1-233,081 discloses changing laser beam machining conditions based upon the material of the workpiece. Blommel et al. in U.S. Patent No. 5,250,785 discloses in column 2,lines 60-66 the focal

point being an exact distance above the workpiece. Yoshida, deceased in U.S. Patent No. 4,762,514 discloses in column 5,lines 38-40 using a laser beam focused above a workpiece.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S. Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 7:00AM to 3:30 PM (flexible).

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

12. /Geoffrey S Evans/

13. Primary Examiner, Art Unit 3742